

REMARKS

Claims 6 & 9-18 have been canceled. New claims 21-31 have been added. Support for new claims 21-25 may be found on pages 9-10 of the specification. New claim 25 is a combination of original claims 1 and 7. New claims 26-30 are essentially original dependent claims 2-6, except that they depend on new claim 25. Claim 31 is a dependent claim directed to the optical element that incorporates the limitations of claim 20. Claims 1-8, and 19 have been amended. Support for the claim amendments may be found on pages 9 and 10 of the specification. No new matter has been added. Claims 1-5, 7-8, and 19-31 are currently pending in the present application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

REJECTION OF CLAIMS 1, 5, 6, 8-13, 18 and 19 UNDER 35 U.S.C. 102

Claims 1, 5, 6, 8-13, 18 and 19 are rejected under 35 U.S.C. 102(e) for the reasons set forth on page 2-4 of the Action. Specifically, claims 1, 5, 6, 8-13, 18 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Kathman et al. (U.S. Pat. No. 6,496,621 B1), which is hereinafter referred to as the Kathman reference.

The rejections under 35 U.S.C. 102(e) are respectfully traversed, at least insofar as applied to the new and amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth herein below.

The Federal Circuit has ruled, "Under 35 U.S.C. §102, anticipation requires that each and every element of the claimed invention be disclosed in the prior art. . . . In addition, the prior art reference must be enabling, thus placing the allegedly disclosed

matter in the possession of the public.” Akzo N.V. v. United States Int’l Trade Comm’n, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986), cert. denied, 482 U.S. 909 (1987).

Furthermore, the Federal Circuit has held, “Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration.” W.L. Gore & Assocs. v. Garlock, Inc., 220 USPQ 303, 313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

It is respectfully submitted that the Kathman reference fails to teach or suggest the optical element as claimed. Specifically, the Kathman reference fails to teach or suggest inter alia the following claim limitation:

“a second phase function having radial symmetry and, a cusp region and a second m value; wherein the cusp region has a discontinuous slope therein; wherein the first m value and the second m value are selectively adjustable to control launch conditions and manage reflections,” as claimed in claim 1.

Similarly, it is respectfully submitted that the Kathman reference fails to teach or suggest the method for manufacturing as claimed. Specifically, the Kathman reference fails to teach or suggest inter alia the following claim limitation:

“defining a second phase function having radial symmetry and, a cusp region and a second m value; wherein the cusp region has a discontinuous slope therein;

defining a surface function that includes the first phase function and the second function by selecting values for the first m value and the second m value to control launch conditions and manage reflections,” as claimed in claim 19.

Regarding independent claim 1 & 19, page 6 of the Action states that the first term of equation 3 of Kathman, col. 4, lines 59, 60, and col. 5, lines 25-49, 55, 58, and 63-65 teach the “second phase function,” as claimed.

However, it is respectfully submitted that Kathman does not fairly teach a second phase function with a second m value, where the first m value of the first phase function and the second m value can be selectively adjusted to control launch conditions and manage reflections. The invention, as claimed, identifies a first m value and a second m value as important parameters that can be adjusted to control factors such as launch conditions and reflection management. This critical teaching is missing from Kathman.

The first term of equation 3 is cited as teaching the second phase function as claimed. However, it appears that the first term of equation 3 of Kathman (which is cited on page 6 of the Action) is dependent on both wavelength (λ) of light and the focal length (f) (see Kathman, col. 4, lines 40 to 47). The second phase function, as claimed, does not have a dependency on wavelength and the focal length. Accordingly, it is respectfully submitted that the first term of equation 3 is very different from and does not fairly teach or suggest the second phase function as claimed.

Moreover, it is respectfully submitted that “the combination of a lens function having radially symmetric terms with a negative axicon function” is not the same and does not fairly teach a second phase function having a second m value as claimed. First, the only lens function disclosed in Kathman is the first term of equation 3. Second, this first term does not have any m value. The only m value disclosed by Kathman is in equation 2, and this value appears to be fixed at $m=3$ (the spiral mode).

Furthermore, even if “a lens function having radially symmetric terms with a negative axicon function” (col. 5, lines 55) fairly teaches the second phase function, which is not conceded, Kathman fails to disclose an expression for the second phase function that includes a second m value and further fails to disclose that the first and

second m values can be adjusted and utilized to control factors such as launch conditions and reflection management as claimed. For example, Kathman seems more concerned with the placement of the phase matching coupler 12 with respect to the end of the fiber to reduce feedback (see col. 5, lines 26-49).

The dependent claims incorporate all the limitations of the independent claim 1 and 19. Furthermore, the dependent claims 2-8 and 20-24 also add additional limitations, thereby making the dependent claims a fortiori and independently patentable over the cited references.

Regarding dependent claim 3, the first term of equation 3 of Kathman (col. 4, line 55) does not fairly teach the cone phase function expressed as follows: $\phi = 2\pi m_c * \rho$ because the cone phase function, as claimed does not depend on the wavelength (λ) of light and the focal length (f) as does the lens function of Kathman. Second, the first term of equation 3 of Kathman (col. 4, line 55) does not fairly teach the components, m_c and ρ of the cone phase function as claimed.

Regarding claim 22, the Kathman reference does not fairly teach or suggest, "wherein the cone phase function includes a cross section that is one of a generally concave profile, a generally triangular cross-section, a generally convex profile, an inverted generally concave profile, an inverted generally triangular cross-section, and an inverted generally convex profile."

Regarding claim 23, the Kathman reference does not fairly teach or suggest, "wherein the values of m_s and m_c are selectively adjustable to control factors that include one of coupling efficiency, misalignment tolerances, and the amount of feedback." The only m value mentioned in Kathman is "m" for equation 2 (col. 4, line

45). Furthermore, it appears that Kathman selects and fixes this number with $m=3$ (the spiral mode) (see, col. 4, lines 39-49). There is no teaching of a second phase function with a second m value as claimed. Moreover, as advanced previously, the first term for equation 3 does not have any m value. If this rejection is maintained for this claim, it is respectfully requested that the next Action specify a particular section of Kathman that teaches this claimed limitation.

Regarding claim 23, the Kathman reference does not fairly teach or suggest, "wherein the values of m_s and m_c are selectively adjustable to suit the requirements of a particular optical application," as claimed. As advanced previously, with respect to claim 22, Kathman at best discloses a single m value (see equation 2, col. 4, line 45) and does not fairly teach two m values. In this regard, Kathman does not fairly teach selectively adjusting the two different m values to meet the requirements of a particular optical application as claimed.

In view of the foregoing, it is respectfully submitted that the Kathman reference fails to teach or suggest the optical navigation device as claimed. Accordingly, it is respectfully requested that the claim rejections under 35 U.S.C. section 102(e) be withdrawn.

REJECTION OF CLAIMS 2-4 and 14-16 UNDER 35 U.S.C. 103

Claims 2-4 and 14-16 are rejected under 35 U.S.C. 103(a) for the reasons set on page 5 of the Action. Specifically, claims 2-4 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kathman.

The rejections under 35 U.S.C. 103 are respectfully traversed, at least insofar as applied to the new and amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

Page 7 of the Action states "it is unclear why the particular parameters, which describe the cone phase region are inventive over the prior art, and why specific values cannot be achieved by routine experimentation." It is respectfully submitted that criticality has been established since the Applicant has not only identified two phase functions each with a separate m value, which Kathman has failed to do, but also has taught that the two m values can be adjusted to control factors such as launch conditions and reflection management.

For example, the first and second m values can be adjusted to balance factors, such as coupling efficiency, misalignment tolerances, and the amount of feedback. In one embodiment, the m values for the cone phase function and the spiral function, respectively, are adjusted to control the above-noted factors.

It is respectfully submitted that Kathman, whether alone or in combination, fails to teach or suggest the invention as claimed. As advanced previously, the first term of equation 3 of Kathman, which represents lens 30, does not fairly teach the second phase function as claimed. Second, Kathman's description of phase matching coupler 12 and lens 30 does not fairly teach or suggest the second phase function, the second m value, and the selectively adjustment of a first and second m values to manage reflections and control launch conditions as claimed.

Furthermore, there is no teaching or suggestion in the cited prior art (in Kathman, for example) of combining a first and second phase function as claimed. It is only with a strained interpretation that the teachings of the present invention are

distilled from the Kathman reference. Accordingly, it is respectfully submitted that one skilled in the art at the time the invention was made would not have been able to arrive at the invention as claimed, unless they had the teachings of the present invention.

The Federal Circuit has held, "It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated, "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." (quoting In re Fine, 837 F.2d 1071, 1075, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988)), In re Fritch, 23 USPQ 2d 1780, 1784 (Fed. Cir. 1992).

It is respectfully submitted that the claimed invention has been improperly used as an instruction manual or "template" to piece together the teachings of the Kathman reference so that the claimed invention is rendered obvious. Accordingly, it is respectfully requested that the claim rejections under 35 U.S.C. section 103(a) be withdrawn.

Conclusion

For all the reasons advanced above, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the pending claims are requested, and allowance is earnestly solicited at an early date. The Examiner is invited to telephone the undersigned if the Examiner has any suggestions, thoughts or comments, which might expedite the prosecution of this case.

Respectfully submitted,

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I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office on the date shown below.

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April 7, 2004
(Date)